

## Alternative Fuel Transit Buses

**Table 7. Approximate Increase in Curb Weight for a 40-foot Transit Bus**

(The curb weight of a diesel bus is approximately 28,000 pounds.)

Alternative Fuel Option	Approximate Increase in Curb Weight (pounds)
LNG	860
CNG	3,900
E95/M100	1,000–1,500
Biodiesel	0

roadway. As a result, the addition of the CNG option often results in a substantial reduction in peak passenger loading, which, if enforced, will restrict the utility of the bus.

The other alternative fuels have substantially lower weight penalties. Biodiesel has none.

### Future Plans

We will continue taking operations data until approximately 18 months of data have been collected from each site. WVU will also continue

emissions testing on the buses in the program once per year. We plan to have at least two sets of emissions tests done on each bus in the program.

Several new sites will also likely be added to the program in the coming year. Among the sites being considered for the program are:

- Corpus Christi, Texas (DDC Series 50 engines, running on propane)
- Portland, Oregon (Cummins L10 engines, running on LNG)
- San Francisco, California (Engines to be determined, running on biodiesel)
- Denver, Colorado (DDC Series 50 engines, running on CNG and propane).

### Numbers, Numbers, Numbers!

Table 8 summarizes the key interim results of the transit bus program.

**Table 8. Summary of Program Results**

(Preliminary results by site and alternative fuel)

AF = Alternative Fuels DC = Diesel Control

		Houston LNG	Miami CNG	Tacoma CNG	Peoria		Minn. E95	Miami M100	St. Louis BD20*
					E95	E93			
Number of buses	AF	10	5	5	5		5	5	5
	DC	5	5	5	3		5	5	5
Mileage in program	AF	375,694	87,329	293,753	269,966	118,688	57,245	193,357	165,017
	DC	431,797	311,813	537,884	157,866	67,491	170,731	368,408	204,036
Average mileage between road calls	AF	1,764	1,164	4,451	7,450		5,189	1,625	8,251
	DC	3,347	1,878	4,044	7,891		2,161	1,949	9,274
Representative MPG (diesel #2 energy equivalent)	AF	3.05	3.22	4.60	3.63	3.26	2.83	3.42	3.71
	DC	3.56	3.57	5.81	3.55	3.41	3.13	3.26	3.94
MPG ratio (AF/DC)		0.86	0.90	0.79	1.02	0.96	0.90	1.05	0.94
Fuel cost (per D2 equivalent gallon)	AF	\$0.80	\$0.69	\$0.55	\$1.83	\$1.21	\$1.80	\$2.29	\$1.00
	DC	\$0.61	\$0.64	\$0.67	\$0.61	\$0.61	\$0.65	\$0.64	\$0.47
Fuel cost per 1,000 miles**	AF	\$173	\$220	\$121	\$504	\$369	\$635	\$671	\$270
	DC	\$170	\$179	\$115	\$172	\$179	\$207	\$196	\$119
Oil cost per 1,000 miles	AF	\$1.45	\$5.54	\$1.74	\$3.94	\$7.76	\$4.41	\$3.27	\$0.69
	DC	\$1.49	\$2.99	\$1.58	\$1.75	\$2.14	\$1.55	\$2.78	\$1.69
Bus maint. cost per 1,000 miles*	AF	\$247	\$243	\$124	\$150		\$207	\$229	\$57
	DC	\$198	\$312	\$136	\$120		\$176	\$256	\$41
Total bus cost per 1,000 miles	AF	\$421	\$469	\$247	\$658	\$527	\$847	\$940	N/A
	DC	\$370	\$495	\$253	\$294	\$301	\$384	\$455	N/A

\* Includes engine/fuel systems only for St. Louis biodiesel

\*\* For LNG, fuel cost per 1,000 miles includes limited use of LNG in the dual-fuel engines. LNG fuel cost calculations do not include cost estimates for venting, which can be significant. CNG fuel cost calculations do not include the cost of compression.

N/A = Not available